**Special Metal Detector Adds Capability to ROVs**

A number of marine service companies and manufacturers are adding a metal detector to their ROVs to increase the vehicle's capabilities. Magnetometers, super sensitive metal detectors, have been used with ROVs for many years, but these instruments only detect iron and steel. If the target of interest is made of nonferrous metal such as gold, silver, aluminum, brass or bronze, a magnetometer is useless. A conventional underwater metal detector can not be attached to an ROV because the electrical noise generated by the vehicle and all of its metal parts interfere with the detector's operation. To overcome these problems JW Fishers Mfg developed the RMD-1 remote metal detector. The unique dual coil design almost completely eliminates the affect of electrical noise and cancels the effect of the ROV's metal structure. Not only is the RMD-1 unaffected by the vehicle's noise and metal, it will detect both ferrous and nonferrous metal buried up to 1.5 meters in the bottom.

Eriksson Diving AB in Sweden has been offering subsea services to their customers since 1984. Their divers do inspections of ships, harbors, dams, ultrasonic thickness measurements, salvage work, underwater cutting and welding, concrete repairs, and cable laying. In addition to the commercial diving operations, Eriksson also performs ROV inspections and sonar surveys. The company acquired a RMD-1 which they've attached to a Seaeye Falcon. Owner Arne Eriksson reports, "We used the system to do a job for Gardline Environmental Ltd at the Sheringham Shoal Offshore Wind Farm. The objective was to locate UXO targets (unexploded ordnance) acquired by towed magnetometers. We ran a search pattern over the area with the ROV and metal detector to determine the precise location of each target. The detector's readouts were logged along with subsea position coordinates. Divers were then deployed to examine the objects found. The work was done over a 2 month period and we had great results."

The remote metal detector is also being used by one of the largest and most successful treasure salvage companies, Oddysey Marine Exploration. According to the company, "No one knows shipwrecks better than our world-class team of researchers, scientists, technicians, and archaeologists." The company is responsible for the location of several high profile wrecks including the SS Gairsoppa, HMS Victory, SS Mantola, Black Swan, and SS Republic. Oddysey originally acquired their RMD-1 to work the Republic site 100 miles off the coast of Georgia in 1,700 feet of water. The ship sank in hurricane in 1865 while carrying a large cargo of gold and silver coins intended for Civil War reconstruction costs. Using a specially designed ROV equipped with the remote metal detector Oddysey's team located more than 51,000 coins, and more than 14,000 other artifacts, buried in the silty bottom.

The light weight and compact design of the RMD-1 allow it to be used on both large and small ROVs. Travis County Sheriffs Department in Texas have the detector mounted on a Fisher SeaOtter-2 ROV, a vehicle less than 2 feet long and weighing only 43 pounds. The system allows the department's Underwater Recovery Team to hunt for weapons and other types of metallic evidence without deploying a diver, reducing search time and increasing safety. When the detector passes over a piece of metal, a meter on the topside control unit swings up and an audio alarm sounds off, notifying the operator a target has been found. Lt. Joe Escribano reports, "We are extremely pleased with the system. It has saved hundreds of hours of diving in our searches for weapons and drowning victims."

Another outfit with an RMD-1 attached to their ROV is Intervention Engineering in Western Australia. The company has the V8-Sii vehicle made by Swedish manufacturer Ocean Modules. Operations manager Stuart Barrow reports, "We used our system to successfully locate 5 inch naval shells in 40 - 70 meters of water. After locating the shells we excavated with a blower and placed small charges on them. The RMD-1 is a very useful piece of kit!"

French manufacturer ECA Robotics offers an extensive line of underwater vehicles which they supply to the military, oil, gas, and nuclear industries. Their products include ROVs with depth ratings from 300 to 2000 meters, remote controlled seabed crawlers, and hybrids with features of both ROVs and crawlers. To enhance the capabilities of these systems ECA has acquired several of Fishers RMD-1 metal detectors.

A few of the other organizations and manufacturers using the RMD-1 are Deep Ocean Engineering in California, Centro de Technologia de Informacao Renato Archer in Brasil, Outland Technology in Louisiana, the Southern Scientific & Production Association for Marine Geological Exploration in Russia, and Argus Remote Systems in Norway.

For more information on JW Fishers complete line of underwater search equipment go to http://www.jwfishers.com.

Photo attached: ECA Robotics ROV with JW Fishers RMD-1 remote metal detector on front, Inset photo – JW Fishers SeaOtter-2 ROV with RMD-1